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ABSTRACT

In 1948 the Mississippi State University College of Education underwent a major revamping of the undergraduate program. Prior to new reforms, data were gathered on elementary education majors to study the effects of the reforms. In order to compare a variety of data from two years prior to 1984 (before actual changes) with data of those graduating during the 1984-88 period (partial changes implemented) and of those graduating since 1988 (all changes implemented), the study looked at four questions: (1) whether personal characteristics of elementary education majors change; (2) relationships between the ACT (American College Test) and the NTE (National Teachers Exam); (3) changes in the NTE scores following curriculum modification; and (4) whether these reforms would bring about the desired changes. After a review of relevant literature, data relating to each of the research questions are discussed. Findings indicated that over the course of the study, elementary education majors' personal characteristics appeared very similar, and that the best predictor of how well students performed on the areas of the NTE was the ACT Composite Score. The study also found a significant increase in scores on all the ACT areas. In general, scores for NTE areas increased approximately four points, with the exception of the Elementary Specialty Area which increased over 40 points. The question raised by this study is why the curriculum area which underwent the most radical reform (professional knowledge) showed the least gain and the curriculum area which underwent the least radical reform (Elementary Education Specialty Area) showed the most gain. Tables summarizing the data are included. (Contains 32 references.) (ND)

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A Longitudinal Study of Elementary Education Majors: 1982-1994

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A Longitudinal Study of Pre and Post Reform Act Data on Elementary Education Majors: 1982-1994

Background:

In 1984 the authors' college of education underwent a large scale revamping of the undergraduate program. The reorganization, like those at so many other institutions, came on the heels of a variety of reports from private foundations and governmental agencies.

Historically, improvements suggested to the profession have involved tougher standards, lesser standards, "better" teachers, more academics, more research based curriculum, extended programs, mentors, increased field work, etc. ("Recent Reports," 1983; Gratch, 1992). The majority of these reports have dealt with the problems arising in secondary education and the training of secondary education teachers. Ergo, what was good for improved secondary education teacher training must also be good for elementary education majors. Cautions are now appearing that what applies to secondary programs does not necessarily apply to elementary programs and that teacher education is turning into a technical/vocational approach (skills teaching to put into place tomorrow) (Stone, 1987). Even college programs are not immune to program assessments. Ernst Benjamin (1990) sees diminished quality as a result of assessments and believes that intellectual broadness will become intellectual narrowness; "rote" will replace imagination.

Critical reports replete with dire prophecies about the public schools have surfaced approximately one per decade since

1883, culminating with the recent 1983-92 period. Nearly all of the reports during this period conflict with previous findings. We now appear to be in a period of excellence, interpreted as more hours, more homework, more testing, more of everything. While the subject of poor teaching, a commonality among the reports is often discussed, none touch on the topic of good teaching ("Scholar Pinpoints Holes," 1984). We are now riding on the crest of the most recent wave of school reform which will subside in roughly seven to ten years if history repeats itself. This reform movement has manifested itself in teacher education programs and teacher evaluation. Competency testing no longer implies the testing of skills acquired by the students. It now refers to the evaluation of teaching skills. Despite the current emphasis on competency testing, universities and other institutions should concentrate on preparing effective teachers, not ones who can pass tests. The purpose of education reform has been an attempt to improve quality education of children as well as the teachers who teach them. The task of improving education is handicapped by the fact that no one is able to define "quality" (Fisher, 1984-85). Legislated reform has very little grass roots support and the mandated reforms handed to education may have even more so depressed professionalism in education (Corrigan, 1985; Warren, 1985).

William J. Bennett completed two major reports concerning elementary schools during his tenure as U.S. Secretary of Education. Both were touted as scathing attacks on the dire

straits of elementary schools and elementary school teachers and prompted numerous calls for reform, yet, if one read page one of First Lessons: A Report on Elementary Education in America (1986), Mr. Bennett stated "... that American elementary education is not menaced by a rising tide of mediocrity." Two years later in his advance copy of James Madison Elementary School: A Curriculum for American Students, he pointed out that elementary school achievement is higher than it has been in three decades (Bennett, 1988). When the President conducted the 1989 Education Summit (Education Summit, 1989) at the University of Virginia, the media reported results that discussed failings of high school students and stagnating college entrance tests. Elementary schools, though, "... are doing better at teaching the basics - such as reading and arithmetic..." (p. 12A). Most recently Gerald Bracey (1992) reviewed standardized test scores, international comparisons, and national assessments and found they contradicted the political and media rhetoric that announced that schools are dismal failures. Instead, some comparisons show that children know more than they did thirty years ago.

Warren (1985) suggested that the present series of reforms are just another series of fads which will fade into the shadows as another trend occupies the spotlight. Possibly, John Sculley, (1988), President of Apple Computer, Inc., in his opening statement in "Tools for the Future," summed up the success of past reforms when he wrote "our country is bounding headlong into the information age, but wouldn't know it to look inside most

classrooms today. In fact, an 18th century visitor overwhelmed by the new sensations of our modern world would feel remarkably at home in a typical classroom" (p. 10). It would appear that all of our reforms from the turn of the century have really caused very few changes.

So why revamp our elementary teacher education program? Partly because the general perception by the public is that change is synonymous with improvement. Goodlad (1988) refers to this as the "bandwagon" syndrome of education leaders. He wrote that when it comes to decisions about how prospective teachers should be trained, "... even some heads of teacher education programs don't seem to know. In brief, dogma and confusion abound" (p. 101). Frank Smith (1989), adds that evaluation, the panacea of educational improvement, might actually be a factor that contributes to the decrease of literacy and that "evaluation is grossly overrated" (p. 356).

Present day reform, according to Deal (1990), is suspiciously similar to past reform - with similar results; very little positive change, and in some cases actual decreases in achievement. Recent data (Waters, 1991) lends some support to this contention. The State of Tennessee tracked test scores of students from one grade to the next (i.e., fourth to fifth) rather than comparing this year's fourth grade with last year's fourth grade. Statewide, of the seven grades compared, five showed decreases in achievement while two showed increases. National trends indicate SAT scores which began a decline in 1969

have continued to drop a total of 60 points (956 to 896) through 1991 with verbal scores at an all-time low. This trend was also mirrored in ACT results, which averaged 20.8 in 1987 and 20.6 in 1991 (Manning, 1991). Other reform notions suggesting recruiting persons from outside the field of education, accepting teacher candidates with degrees heavy in academic areas, and limiting the number of "easy" education courses, have proven to be more myth than fact (Kennedy, 1992; Wise, 1994). Somehow we've forgotten our zest for life, that there is a joy to learning and we've replaced this attitude with OBJECTIVE (our emphasis) education (Deal, 1990).

Skepticism gave birth to the authors' concern about our own area of elementary teacher education. Goodlad (1988) explains that skepticism is a necessary ingredient when revamping the old. Questions should be provoked concerning the basis for instituting changes, how it will be better, etc. For us this was the time for gathering data and exploring it thoroughly, making program adjustments, not just embracing mandates.

"Quick fixes always fail in education..." (Reform Takes Time, 1990, p. 92) due in part to the enormity of the education business and due in part to the fact that education is a people business of attitudes, experiences, and beliefs rather than the perceived notion of politicians and reform minded committees, and that it also consists of policy making, organizational structure and procedures (Bondy, Schmitz, and Johnson, 1993; Brown and Wendel, 1993). The call of the future is to be able to learn

rapidly, be adaptable, flexible, and knowledgeable in the use of technology. Education is just one of the issues of the 1990's; in planning, educators need to be ready for the energy of new ideas that will come faster by the turn of the century (Manning, 1989; Purcell, 1992). A new vision should develop learner autonomy and education geared less toward curriculum content and more toward thinking (BellSouth Foundation, 1991).

With these thoughts in mind we began gathering data on our elementary education majors prior to any reforms to study what effects the various reforms would bring about. The following data provide some guidance for program adjustment.

Data Collection

Baseline data were gathered and organized in a form that provided demographic information and which could eventually be used for short and long term planning. Our data were arranged pre/post College of Education Reform (1984-88), and post reform data (after 1988). At the outset of the study our purpose was to be able to compare a variety of data from two years prior to 1984, (before actual changes) with data of those graduating during the 1984-88 period (partial legislated changes and partial college changes), and with those students graduating since 1988 (those who've had all the changes applied).

Phase I Summary

The average elementary education major that graduated from Mississippi State University was female (96.7%), Caucasian (84.3%), and transferred from a junior college (80%). These

percentages have remained quite steady from 1982 through the present (see table I). When comparing graduates prior to 1984 (state entrance and college reforms took place at this point), with those who graduated after 1984 there was a significant difference at the .01 level for every ACT sub-area in favor of those "after" graduates. Even though the ACT comparison (at entrance) illustrated great differences; those who graduated after 1984 and who had participated in the College of Education Professional Core reform package showed a significant change in only the NTE General Knowledge Mean, (Shelton, Turner, & Sumrall, 1987).

Phase II Summary

At one time, our university used the ACT as part of a general entrance requirement. Prior to 1988 College of Education students were allowed to substitute the Composite ACT in lieu of the general knowledge portion of a state developed exam, or used the GK portion of the NTE for the same purpose. At exit from the teaching program one was then certified upon successful completion of the NTE. A great deal of time, effort, and expense was used to take exams which apparently tested the same types of knowledge. A significant relationship between the state exam and the NTE, and the Composite ACT and the NTE existed. From our findings, based on graduates covering approximately six years, we recommended the elimination of this redundancy.

After reviewing Phase I and Phase II data the researchers felt justified in stating that student test score improvement was

tied more to higher entrance requirements than program revision, (Shelton, Turner, & Perkins, 1988).

Phase III Summary

Phase III of this study compared three groups of elementary education graduates. Group I included students from the 1982-1983 period who graduated prior to any reforming of the program. Group II was made up of those students from the 1984-1988 period. During this time the State of Mississippi, the University, and the College of Education implemented a variety of changes, and students from this group had various parts of reform applied to their programs, but no graduating group had all of one set of reforms. Group III consisted of students who had all phases of reform applied; high school, university, and college of education.

Even though one entire graduating class did have all the reforms applied, no significant differences were found in the National Teachers Exam results, except for the area of General Knowledge (GK). Students who had gone through some of the reforms (Group II) performed significantly better than those who entered prior to any reform (Group I). The Group II NTE GK mean score (652.56) was actually greater than group III (651.43) which had all the high school, general university, and college of education reforms applied. Once again it was found that increasing the freshman entrance requirements of higher ACT scores was the most impressive casual factor for the NTE improvement (Turner, Shelton, & Finley, 1989).

Phase IV Summary

At this point (1990) two entire classes of elementary education majors had graduated with all reforms; State of Mississippi high school graduate requirement changes, common core for all Mississippi college students, and Mississippi State's College of Education Professional Education core. This group (III) was compared to the 1984-88 students (II) who participated in limited reforms.

A step-wise multiple regression was used in relating ACT predictor variables to the NTE and analysis of variance was used to test for significance between Group II and Group III comparing the ACT and NTE tests. Regression results showed the best single predictor for any area of the NTE was the ACT composite score. No significant differences appeared between Group II (partial reforms) and Group III (all reforms) on the ACT composite or subscores, or NTE scores. Improved scores did not seem to be a result of our College of Education Professional Core reforms (Shelton & Turner, 1990).

Phase V Summary

An examination of the data using step-wise multiple regression relating ACT predictor variables to the NTE supported previous findings that the ACT composite score was the best single predictor for any area of the NTE. An analysis of variance was used to test for significant differences between the three groups' ACT scores. ACTs were significantly higher in every area (English, math, social sciences, natural sciences,

composite) for students who had partial (Group II) or total reforms (Group III) compared to Group I students (no reforms). When comparing NTE scores using analysis of variance, both Groups II and III scored significantly higher than Group I in Communication, General Knowledge, and the Elementary Specialty Area.

Findings supported previous data that the best single predictor for any area of the NTE was the ACT Composite Score. The major difference in this data contrasted with the earlier years when significance was not found in curriculum areas that were revised (i.e., professional core). For the first time since this study began, Group III, which had all the reforms applied, scored significantly higher than the other groups in the NTE area of Professional Knowledge. (Turner & Shelton, 1993)

Phase VI

Research Questions

Questions asked at the inception of this longitudinal study basically are the same over ten years later.

1) Will the personal characteristics of our elementary education majors change?
2) What relationships exist between the ACT and the NTE?
3) What changes will occur in the NTE scores as the curriculum is modified?
4) Over time would reform actually reform?

Subjects

The subjects were elementary majors grouped according to the

amount of reform in which they participated. Group I (1982-1983 N = 60), provided our baseline data because they graduated prior to any of the 1980's mandated reforms, Group II (1984-1988 N = 222), had some reforms (i.e., added high school courses, higher college entrance scores, etc.), and Group III (1988-1993 N = 564) were the elementary majors who participated in all the reforms during their education.

Treatment of the Data

The demographic data bank formed to answer whether the personal characteristics of our elementary education majors would change, shows little change. Table I includes the information on over one-thousand elementary majors and indicates that they are slightly older, predominately female, and still reflects little overall change racially, etc. when compared to the baseline group from 1982-1993 (See Table I).

Question 2 examined the relationship between the various areas and total scores for the ACT and the NTE. Phase II's data showed there was a significant relationship between the NTE, the ACT composite score and the State exam (used throughout the late 1980's). Using step-wise multiple regression the results have remained somewhat constant since the beginning of this study; The Best Single Predictor For Any Area of the NTE was the ACT composite score (See Table II).

To answer the third question, would change occur in the NTE as the curriculum underwent modification, an analysis of variance was applied to test significant differences between Group I, II,

and III comparing their NTE scores (Communication, General Knowledge, Professional Knowledge, and the Specialty Area of Elementary Education). As noted in the summaries through 1990, various reform approaches appeared to be non-effective in improving NTE Professional Knowledge scores (where the major college reforms had taken place). One oddity that appeared in Phase III (1989) was the finding that Group II (partial reforms) scored significantly higher on the NTE General Knowledge than Group I (no reforms) and Group III (those who had all the reforms). In Phase V (1992) and for the first time since the study began, Group III scored significantly higher than Group I on the NTE Professional Knowledge Area.

The meat and potatoes of this project was to research reforms that were being applied to our elementary education majors and to revise the curriculum based on this research. Did these reforms (political, state department, university, internal, etc.) actually bring about the desired changes?

A state mandated minimum ACT requirement of 15 enacted in 1984 brought a significant change in the mean ACT. Group III's composite mean (18.82) in 1993 contrasts sharply with the group of elementary majors (15.55) that graduated prior to this mandate. Similar changes also occurred in all the ACT sub areas (See Table III). The same is generally true of NTE scores in the Communication and General Knowledge areas. Due to a state mandated higher cut off score for entrance to the college of education using both areas mentioned above these scores also rose

significantly over Group I (1982-1983). Professional Knowledge was a different story. The part of the curriculum that received a major face lift was the professional core class sequence (21 hours) that included learning theory, planning, special education, etc. Until last year the Professional Knowledge area of the NTE showed no statistical differences.

The Specialty Area of Elementary Education which had not undergone major changes, but included continuous curriculum adjustment, exhibited significant growth in mean scores (See Table IV).

Summary

During the ten years plus of this study our elementary education majors' personal characteristics appear very similar. The major predictor of how well one performs on the areas of the NTE is the ACT Composite Score. There has also been a significant increase in all the ACT areas. In general the NTE areas have increased approximately four points with the exception of the Elementary Specialty Area which has increased over forty points.

The question raised by this study is why did the curriculum area which underwent the most radical reform (Professional Knowledge) show the least gain and the curriculum area which underwent the least radical reform (Elementary Education Specialty Area) show the most gain?

TABLE I

Demographic Profile of Elementary Majors

1982-1993

	N	AGE	Percent
Age at Graduation	1104	23.42 [22.75%]	
Female	1067		96.8 [96.7%]
Male	21		1.8 [2.6%]
Other	16		1.5 [.8%]
White	945		85.8 [84.3%]
Black	69		6.3 [5.9%]
Oriental	4		.4 [1.0%]
Not Reported	84		7.6 [8.7%]
Transfer	714		64.8 [81.2%]
Non-Transfers	370		33.6 [18.8%]
Other	18		1.6

[ ] signifies the 1982/83 profile

TABLE II

Step-Wise Multiple Regression Relating ACT Predictor Variables to National Teachers Exam From 1982 Through 1993

Communication (NTE)

Predictor Variable	Multiple R	R Square	DF	F	SIG.
ACT Composite	.6112	.3736	1,718	428.224	.000*
ACT Math	.6288	.3955	2,717	234.504	.000*
ACT English	.6357	.4041	3,716	161.820	.000*
ACT Social Science	.6404	.4102	4,715	124.298	.000*

General Knowledge (NTE)

Predictor Variable	Multiple R	R Square	DF	F	SIG.
ACT Composite	.6781	.4598	1,716	609.490	.000*
ACT Social Science	.6833	.4669	2,715	313.057	.000*

Professional Knowledge (NTE)

Predictor Variable	Multiple R	R Square	DF	F	SIG.
ACT Composite	.5475	.2998	1,671	287.274	.000*
ACT Math	.5647	.3189	2,670	156.826	.000*
ACT Science	.5683	.3229	3,669	106.354	.000*

Specialty Area Elementary (NTE)

Predictor Variable	Multiple R	R Square	DF	F	SIG.
ACT Composite	.6219	.3867	1,662	417.426	.000*
ACT Math	.6298	.3967	2,661	217.307	.000*

*$p < .05$

TABLE III

Analysis of Variance Using ACT Scores Between Group I (1982-83) Group II (1984-88), and Group III (1988-93)

Group	N	$\bar{X}$	SD	F Ratio	Probability
English					
Group I	60	16.76	5.22	28.81	.0000*
Group II	222	19.72	4.23		
Group III	564	20.81	3.89		
*p < .05 Results of Scheffe' English: Group II > Group I Group III > Group I and II					
Mathematics					
Group I	60	13.83	6.01	10.95	.0000*
Group II	222	16.13	6.02		
Group III	564	17.26	5.71		
*p < .05 Results of Scheffe' Mathematics: Group II & III > Group I					
Social Science					
Group I	60	13.38	5.09	13.16	.0000*
Group II	222	17.14	5.75		
Group III	564	17.16	5.44		
*p < .05 Results of Scheffe' Social Science: Group II & III > Group I					
Natural Science					
Group I	60	17.52	4.83	10.56	.0000*
Group II	222	19.52	4.60		
Group III	564	20.17	4.27		
*p < .05 Results of Scheffe' Natural Science: Group II & III > Group I					
Composite					
Group I	85	15.55	4.04	27.72	.0000*
Group II	262	18.15	3.92		
Group III	582	18.82	3.75		
*p < .05 Results of Scheffe' Composite: Group II & III > Group I					

TABLE IV

Analysis of Variance Using NTE Scores Between Group I (1982-83) Group II (1984-88, and Group III (1988-93)

Group	N	$\bar{X}$	SD	F Ratio	F Probability
Communication					
Group I	75	654.76	10.85	5.59	.0039*
Group II	258	658.39	12.56		
Group III	553	658.74	7.79		
*p < .05 Results of Scheffe' Communication: Group II & III > Group I					
General Knowledge					
Group I	75	648.13	11.18	10.99	.0000*
Group II	258	653.01	12.02		
Group III	551	653.70	8.06		
*p < .05 Results of Scheffe' General Knowledge: Group II & III > Group I					
Professional Knowledge					
Group I	75	654.81	10.62	4.61	.0102*
Group II	258	657.50	12.08		
Group III	509	658.61	9.50		
*p < .05 Results of Scheffe' Professional Knowledge: Group III > Group I					
Specialty Area (Elementary)					
Group I	75	579.33	71.83	16.38	.0000*
Group II	258	611.38	66.89		
Group III	496	621.19	53.72		
*p < .05 Results of Scheffe' Specialty Area: Group II & III > Grcup I					

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